Complete Summary

TITLE

Surgical care improvement project: percent of surgery patients who received appropriate VTE prophylaxis within 24 hours prior to *Anesthesia Start Time* to 24 hours after *Anesthesia End Time*.

SOURCE(S)

Specifications manual for national hospital inpatient quality measures, version 3.0c. Centers for Medicare & Medicaid Services (CMS), The Joint Commission; 2009 Oct 1. various p.

Measure Domain

PRIMARY MEASURE DOMAIN

Process

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the Measure Validity page.

SECONDARY MEASURE DOMAIN

Does not apply to this measure

Brief Abstract

DESCRIPTION

This measure is used to assess the percent of surgery patients who receive appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to *Anesthesia Start Time* to 24 hours after *Anesthesia End Time*.

RATIONALE

There are over 30 million surgeries performed in the United States each year. Despite the evidence that venous thromboembolism (VTE) is one of the most common postoperative complications and prophylaxis is the most effective strategy to reduce morbidity and mortality, it is often underused. The frequency of VTE, that includes deep vein thrombosis and pulmonary embolism, is related to the type and duration of surgery, patient risk factors, duration and extent of postoperative immobilization, and use or nonuse of prophylaxis. According to Heit

et al, 2000, surgery was associated with over a twenty-fold increase in the odds of being diagnosed with VTE. Studies have shown that appropriately used thromboprophylaxis has a positive risk/benefit ratio and is cost effective. Prophylaxis recommendations for this measure are based on selected surgical procedures from the 2004 American College of Chest Physicians guidelines.

Timing of prophylaxis is based on the type of procedure, prophylaxis selection, and clinical judgment regarding the impact of patient risk factors. The optimal start of pharmacologic prophylaxis in surgical patients varies and must be balanced with the efficacy-versus-bleeding potential. Due to the inherent variability related to the initiation of prophylaxis for surgical procedures, 24 hours prior to surgery to 24 hours post surgery was recommended by consensus of the Surgical Care Improvement Project (SCIP) Technical Expert Panel in order to establish a timeframe that would encompass most procedures.

PRIMARY CLINICAL COMPONENT

Surgical care; venous thromboembolism (VTE) prophylaxis

DENOMINATOR DESCRIPTION

All selected surgery patients (see the related "Denominator Inclusions/Exclusions" field in the Complete Summary and Appendix A, Table 5.10 for the list of selected surgeries)

NUMERATOR DESCRIPTION

Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis* within 24 hours prior to *Anesthesia Start Time* to 24 hours after *Anesthesia End Time*

*Refer to the table, "VTE Prophylaxis Options for Surgery," in the original measure documentation for recommended prophylaxis.

Evidence Supporting the Measure

EVIDENCE SUPPORTING THE CRITERION OF QUALITY

- A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence
- A systematic review of the clinical literature
- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

NATIONAL GUIDELINE CLEARINGHOUSE LINK

- Prevention of venous thromboembolism. American College of Chest Physicians evidence-based clinical practice guidelines (8th edition).

Evidence Supporting Need for the Measure

NEED FOR THE MEASURE

Use of this measure to improve performance

EVIDENCE SUPPORTING NEED FOR THE MEASURE

Amaragiri SV, Lees TA. Elastic compression stockings for prevention of deep vein thrombosis. Cochrane Database Syst Rev2000;(3):CD001484. [29 references] PubMed

Anderson FA Jr, Wheeler HB, Goldberg RJ, Hosmer DW, Forcier A, Patwardhan NA. Physician practices in the prevention of venous thromboembolism. Ann Intern Med1991 Oct 15;115(8):591-5. PubMed

Bratzler DW, Raskob GE, Murray CK, Bumpus LJ, Piatt DS. Underuse of venous thromboembolism prophylaxis for general surgery patients: physician practices in the community hospital setting. Arch Intern Med1998 Sep 28;158(17):1909-12. PubMed

Geerts WH, Bergqvist D, Pineo GF, Heit JA, Samama CM, Lassen MR, Colwell CW. Prevention of venous thromboembolism: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th Edition). Chest2008 Jun;133(6 Suppl):381S-453S. [728 references] PubMed

Goldhaber SZ, Dunn K, MacDougall RC. New onset of venous thromboembolism among hospitalized patients at Brigham and Women's Hospital is caused more often by prophylaxis failure than by withholding treatment. Chest2000 Dec;118(6):1680-4. PubMed

Heit JA, Silverstein MD, Mohr DN, Petterson TM, O'Fallon WM, Melton LJ 3rd. Risk factors for deep vein thrombosis and pulmonary embolism: a population-based case-control study. Arch Intern Med2000 Mar 27;160(6):809-15. PubMed

Hull RD, Brant RF, Pineo GF, Stein PD, Raskob GE, Valentine KA. Preoperative vs postoperative initiation of low-molecular-weight heparin prophylaxis against venous thromboembolism in patients undergoing elective hip replacement. Arch Intern Med1999 Jan 25;159(2):137-41. PubMed

Iorio A, Agnelli G. Low-molecular-weight and unfractionated heparin for prevention of venous thromboembolism in neurosurgery: a meta-analysis. Arch Intern Med2000 Aug 14-28;160(15):2327-32. PubMed

Janku GV, Paiement GD, Green HD. Prevention of venous thromboembolism in orthopaedics in the United States. Clin Orthop Relat Res1996 Apr;(325):313-21. PubMed

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intervention: update of previous meta-analyses. Br J Surg1997 Jun;84(6):750-9. PubMed

Making healthcare safer: a critical analysis of patient safety practices. Rockville (MD): Agency for Healthcare Research and Quality; Prevention of venous thromboembolism, contract no. 290-97-0013.

O'Donnell M, Weitz JI. Thromboprophylaxis in surgical patients. Can J Surg2003 Apr;46(2):129-35. PubMed

Palmer AJ, Schramm W, Kirchhof B, Bergemann R. Low molecular weight heparin and unfractionated heparin for prevention of thrombo-embolism in general surgery: a meta-analysis of randomised clinical trials. Haemostasis1997 Mar-Apr;27(2):65-74. PubMed

Raskob GE, Hirsh J. Controversies in timing of the first dose of anticoagulant prophylaxis against venous thromboembolism after major orthopedic surgery. Chest2003 Dec;124(6 Suppl):379S-385S. [26 references] PubMed

Stratton MA, Anderson FA, Bussey HI, Caprini J, Comerota A, Haines ST, Hawkins DW, O'Connell MB, Smith RC, Stringer KA. Prevention of venous thromboembolism: adherence to the 1995 American College of Chest Physicians consensus guidelines for surgical patients. Arch Intern Med2000 Feb 14;160(3):334-40. PubMed

Vanek VW. Meta-analysis of effectiveness of intermittent pneumatic compression devices with a comparison of thigh-high to knee-high sleeves. Am Surg1998 Nov;64(11):1050-8. PubMed

State of Use of the Measure

STATE OF USE

Current routine use

CURRENT USE

Accreditation
Collaborative inter-organizational quality improvement
External oversight/Medicaid
External oversight/Medicare
Internal quality improvement
National reporting
Pay-for-performance

Application of Measure in its Current Use

CARE SETTING

Hospitals

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Measure is not provider specific

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Single Health Care Delivery Organizations

TARGET POPULATION AGE

Age greater than or equal to 18 years

TARGET POPULATION GENDER

Either male or female

STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

Unspecified

ASSOCIATION WITH VULNERABLE POPULATIONS

Unspecified

BURDEN OF ILLNESS

Unspecified

UTILIZATION

Unspecified

COSTS

Unspecified

Institute of Medicine National Healthcare Quality Report Categories

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness
Timeliness

Data Collection for the Measure

CASE FINDING

Users of care only

DESCRIPTION OF CASE FINDING

All selected surgery patients, age 18 years and older

DENOMINATOR SAMPLING FRAME

Patients associated with provider

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions
Discharges, 18 years of age and older, with an InternationalÂ Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)Â Principal Procedure Code of selected surgeries as defined in the appendices of the original measure documentation

Exclusions

- Patients less than 18 years of age
- Patients who have a Length of Stay (LOS) greater than 120 days
- Burn patients (as defined in the Appendix A, Table 5.14Â of the original measure documentation for ICD-9-CM codes)
- Patients with procedures performed entirely by *Laparoscope*
- Patients enrolled in clinical trials
- Patients who are on warfarin prior to admission
- Patients whose ICD-9-CM principal procedure occurred prior to the date of admission
- Patients whose total surgery time is less than or equal to 60 minutes
- Patients with hospital length of stay less than or equal to 3 calendar days
- Patients who expire perioperatively
- Patients with reasons for not administering both mechanical and pharmacological prophylaxis.
- Patients who did not receive *VTE Prophylaxis* (as defined in the Data Dictionary of the original measure documentation)

RELATIONSHIP OF DENOMINATOR TO NUMERATOR

All cases in the denominator are equally eligible to appear in the numerator

DENOMINATOR (INDEX) EVENT

Institutionalization
Therapeutic Intervention

DENOMINATOR TIME WINDOW

Time window brackets index event

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions
Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis* within 24 hours prior to *Anesthesia Start Time* to 24 hours after *Anesthesia End Time*

*Refer to the table, "VTE Prophylaxis Options for Surgery," in the original measure documentation for recommended prophylaxis.

Exclusions
None

MEASURE RESULTS UNDER CONTROL OF HEALTH CARE PROFESSIONALS, ORGANIZATIONS AND/OR POLICYMAKERS

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

NUMERATOR TIME WINDOW

Fixed time period

DATA SOURCE

Administrative data
Medical record

LEVEL OF DETERMINATION OF QUALITY

Individual Case

PRE-EXISTING INSTRUMENT USED

Unspecified

Computation of the Measure

SCORING

Rate

INTERPRETATION OF SCORE

Better quality is associated with a higher score

ALLOWANCE FOR PATIENT FACTORS

Unspecified

STANDARD OF COMPARISON

External comparison at a point in time
External comparison of time trends
Internal time comparison

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

Unspecified

Identifying Information

ORIGINAL TITLE

SCIP-VTE-2: surgery patients who received appropriate venous thromboembolism prophylaxis within 24 hours prior to surgery to 24 hours after surgery.

MEASURE COLLECTION

National Hospital Inpatient Quality Measures

MEASURE SET NAME

Surgical Care Improvement Project (SCIP)

SUBMITTER

Centers for Medicare & Medicaid Services
Joint Commission, The

DEVELOPER

Centers for Medicare & Medicaid Services/The Joint Commission

FUNDING SOURCE(S)

All external funding for measure development has been received and used in full compliance with The Joint Commission's Corporate Sponsorship policies, which are available upon written request to The Joint Commission.

COMPOSITION OF THE GROUP THAT DEVELOPED THE MEASURE

The Centers for Medicare & Medicaid Services assembled and maintained the Technical Expert Panel for development of the Surgical Infection Prevention Project (SIP) measures in 2002. The SIP set subsequently transitioned to the Surgical Care Improvement Project (SCIP) effective July 1, 2006. The panel has been maintained by the Centers for Medicare & Medicaid Services since the inception of the project.

SCIP Partners include the Steering Committee of 10 national organizations who have pledged their commitment and full support for SCIP:

- Agency for Healthcare Research and Quality
- American College of Surgeons
- American Hospital Association
- American Society of Anesthesiologists
- Association of Perioperative Registered Nurses
- Centers for Disease Control and Prevention
- Centers for Medicare & Medicaid Services
- Institute for Healthcare Improvement
- The Joint Commission
- Veterans Health Administration

FINANCIAL DISCLOSURES/OTHER POTENTIAL CONFLICTS OF INTEREST

Expert panel members have made full disclosure of relevant financial and conflict of interest information in accordance with the Conflict of Interest policies, copies of which are available upon written request to The Joint Commission and the Centers for Medicare & Medicaid Services.

ENDORSER

National Quality Forum

INCLUDED IN

Hospital Compare
Hospital Quality Alliance

ADAPTATION

Measure was not adapted from another source.

RELEASE DATE

2006 Jun

REVISION DATE

2009 Oct

MEASURE STATUS

This is the current release of the measure.

This measure updates a previous version: Specifications manual for national hospital quality measures, version 2.5b. Centers for Medicare & Medicaid Services (CMS), The Joint Commission; 2008 Oct. various p.

SOURCE(S)

Specifications manual for national hospital inpatient quality measures, version 3.0c. Centers for Medicare & Medicaid Services (CMS), The Joint Commission; 2009 Oct 1. various p.

MEASURE AVAILABILITY

The individual measure, "SCIP-VTE-2: Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis Within 24 Hours Prior to Surgery to 24 Hours After Surgery," is published in "Specifications Manual for National Hospital Inpatient Quality Measures." This document is available from The Joint Commission Web site. Information is also available from the Centers for Medicare & Medicaid Services (CMS) Web site. Check The Joint Commission Web site and CMS Web site regularly for the most recent version of the specifications manual and for the applicable dates of discharge.

COMPANION DOCUMENTS

The following are available:

- A software application designed for the collection and analysis of quality improvement data, the CMS Abstraction and Reporting Tool (CART), is available from the CMS CART Web site. Supporting documentation is also available. For more information, e-mail CMS PROINQUIRIES at proinquiries@cms.hhs.gov.
- The Joint Commission. A comprehensive review of development and testing for national implementation of hospital core measures. Oakbrook Terrace (IL): The Joint Commission; 40 p. This document is available from The Joint Commission Web site.
- The Joint Commission. Attributes of core performance measures and associated evaluation criteria. Oakbrook Terrace (IL): The Joint Commission; 5 p. This document is available from The Joint Commission Web site.
- Hospital compare: a quality tool provided by Medicare. [internet]. Washington (DC): U.S. Department of Health and Human Services; 2009 Oct 5; [accessed 2009 Oct 12]. This is available from the Medicare Web site. See the related QualityTools summary.

NQMC STATUS

This NQMC summary was originally completed by ECRI on May 8, 2007. This NQMC summary was updated by ECRI Institute on October 26, 2007. The Joint Commission informed NQMC that this measure was updated on June 30, 2008 and provided an updated version of the NQMC summary. This NQMC summary was updated accordingly by ECRI Institute on December 11, 2008. The information was verified by the Centers for Medicare & Medicaid Services on March 19, 2009. The Joint Commission informed NQMC that this measure was updated again on October 1, 2009 and provided an updated version of the NQMC summary. This NQMC summary was updated accordingly by ECRI Institute on December 9, 2009. The information was verified by the Centers for Medicare & Medicaid Services on February 18, 2010.

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